

Connections

THERMOMASS NEWSLETTER

Turnbull Wine Cellar Oakville, California



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PROJECT PROFILE: TURNBULL WINE CELLAR

The wine industry is faced with critical temperature management issues. The storing and fermenting of wine is a process that requires a stable environment in order to ensure a pristine final product. Just a few degrees fluctuation in temperature or a slight deviation in internal relative humidity can make or break an entire bottling.

Whether it is Chardonnay, Pinot Noir, Shiraz, Merlot, or any boutique brand, wineries and barrel storage rooms designed with THERMOMASS concrete sandwich walls help create an “above ground cave” offering a precisely controlled environment and a refined final product.

An example of what a THERMOMASS “above ground cave” can be is demonstrated in the Turnbull Wine Cellars, part of Estate Vineyards. Located in Oakville, in the heart of the Napa Valley, the Turnbull Wine Cellars were constructed to serve a vast estate and collection of vineyards, having grown from 21 acres of Cabernet Sauvignon in 1993 to 185 acres of several varieties today.

The 300,000 cubic foot project, constructed by Bethlehem Construction of Shafter, CA, utilized 3 inches of THERMOMASS insulation in the site-cast tilt-up panel. The structural layer

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PRESIDENT'S CORNER

When we started this newsletter almost 18 months ago, we were just coming off another fantastic year and were hoping to be able to generate some buzz nationally by producing a piece that we could place in front of some of our current customers as well as clients who were just learning about our products.

I am happy to report that the times have definitely changed.

In fact, this issue of *Connections* is largely devoted to all of the positive response we have received from the national media.

From *Architectural Record* choosing THERMOMASS as one of last year's top products to recent articles about our residential systems in *The Denver Post* and *Minneapolis Star Tribune*, we really feel like people are noticing all of the great benefits that our system can

bring to all types of concrete construction projects.

Of course, I know that this attention is due entirely to the people who are reading this publication - our talented employees, diligent sales reps, and the thousands of past, present and future customers.

Here at Composite Technologies Corporation, we are delighted to be in the midst of another banner year, so, to all of you who have helped shape our success, I offer my sincerest thanks and wish you and your company the best for the rest of the year.

Tom Stecker
President



GORDON JOINS SALES TEAM

Composite Technologies Corporation is pleased to announce the addition of David Gordon.

Dave will assume the role of Northeast Region Sales Manager and will be handling the states of Ohio, Pennsylvania, West Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire and Maine.



David Gordon

Dave was born and raised in Northeast Ohio and currently resides in Columbus where he has lived for the past seven years.

He graduated from Youngstown State University and then owned his own business for ten years. Dave's background also includes time spent as a territory manager for a residential precast company in Central Ohio and as a custom home builder.

In his spare time, David enjoys golf, skiing, boating and home improvement projects.

David will work out of his home office in Columbus and can be reached by email at dgordon@thermomass.com.

We welcome David to the Composite Technologies Corporation team!

UPCOMING EVENTS

The list below details all of the conventions and tradeshow that Composite Technologies Corporation is scheduled to attend in the coming months.

For more information on any of these events, please feel free to contact Tammie Sobkowiak at (800) 232-1748 or at tsobkowiak@thermomass.com.

October 1 - 2 National Beer Wholesalers Association (NBWA)

Paris Las Vegas
Las Vegas, NV
Booth #505

October 3 - 6 Tilt-Up Concrete Association (TCA)

Marriott Hotel
College Park, MD

October 15 - 17 Process Food/Pack Expo

Las Vegas Convention Center
Las Vegas, NV
Booth #6703

October 21 - 24 PCI 53rd Annual Convention

Phoenix Convention Center
Phoenix, AZ

October 31 - November 2 Design-Build Institute of America (DBIA)

Gaylord Texan
Grapevine, TX
Booth #706

November 6 - 8 Greenbuild International Conference & Expo

McCormick Place
Chicago, IL
Booth #1266

THERMOMASS MC/MS CONNECTORS RECEIVE ICC EVALUATION

Composite Technologies Corporation is pleased to announce that its MC/MS connector series has received an Evaluation Service Report (ESR-1746) from ICC-ES.

ICC-ES is a subsidiary of the International Code Council, a membership association dedicated to building safety and fire prevention that develops the codes used to construct residential and commercial buildings, including homes and schools.

Most U.S. cities, counties and states that adopt codes choose the International Codes developed by the International Code Council.

ICC-ES ESR-1746 is based on data submitted in accordance with AC320 (ICC-ES Acceptance Criteria for Fiber-reinforced Composite Connectors Anchored in Concrete). The AC320 requires seismic tests, creep tests, extreme temperature tests, static tension tests, shear tests and documentation of on-going third-party traceable quality control processes.

AC320 is the technical basis for the issuance of the THERMOMASS® MC/MS connector series ESR and should be downloaded in support of ESR-1746.

Architects, engineers and contractors rely on ICC-ES reports to verify that products and systems meet code requirements. This assurance provides



THERMOMASS MC/MS connectors have been used in projects totaling over 850 million square feet over the past twenty-five years.

construction professionals the peace of mind in knowing that ICC-ES listed materials in their commercial and residential concrete projects are trusted, tested and safe.

“With this report, the MC/MS connectors are in compliance with the 2006 and 2003 International Building Code (IBC) as well as the 1997 Uniform Building Code”, said Venkatesh Seshappa, Director of Engineering, Research and Development for Composite Technologies Corporation.

“The report also contains the necessary design values and design equations required to easily design integrally-insulated concrete wall panels, more commonly known as ‘sandwich panels’.”

Supplied to site-cast tilt-up contractors and plant precast manufacturers throughout the world, the non-corrosive, chemical-resistant, fiber-composite MC/MS connectors are paired with The

Dow Chemical Company’s insulation products to create THERMOMASS®, a concrete sandwich wall insulation system.

“We’re very excited about the historic importance of this report and the acceptance criteria,” said Tom Stecker, President of Composite Technologies Corporation.

“For over twenty-five years, we have collaborated with top engineering, testing, and quality control laboratories around the world to ensure our products adhere to strict quality control guidelines while meeting the growing demands of the tilt-up and precast industries.”

For more information about these reports or any of THERMOMASS’s code approval documents, please call us at (800) 232-1748.



MORE INFORMATION

The complete ESR-1746 report is available from the ICC-ES website at:
www.icc-es.org/reports/pdf_files/ICC-ES/ESR-1746.pdf

ICC-ES ESR-1746 is based on data submitted in accordance with AC320 (ICC-ES Acceptance Criteria for Fiber-reinforced Composite Connectors Anchored in Concrete). The AC320 document can be found at:
www.icc-es.org/criteria/pdf_files/ac320.pdf

More information about ICC-ES, its history and its evaluations can be found at:
www.icc-es.org

DOES IT COST MORE TO BUILD GREEN?

There is little doubt that our industry is abuzz with talk about “Green” Building, “Green” materials, sustainable design, LEED certification (Silver, Gold and Platinum), high-performance construction, energy conservation - the list goes on and on. So it is no wonder that there are more than a few people in the construction industry who are a little confused as to what it all means.

With all of the “Green” advertising and legislation that is in the news today, it can become a little overwhelming as to what is real and not just smoke and mirrors.

What is often more confusing is how these changes in environmentally responsible design and construction affect actual construction costs. In fact, many people have been led to believe that constructing a LEED-certified building is simply more expensive.

Is that true? Do LEED-certified projects have to cost more?

The answer, of course, is no. LEED certification does not have to cost a penny more.

In fact, a great number of completed projects will attest that LEED certification – along with its many benefits - can be achieved at no additional cost by combining common-sense design with innovative materials and construction techniques.

Additional studies have shown that there is no significant cost variation for green (LEED certification-seeking) projects versus similar non-green (non-LEED certification-seeking) projects. Non-green projects were generally in the same construction cost range as similar green projects across nearly all categories studied. This would seem to contradict the often-made claim that

there is a premium to be paid for being “Green”.

As always, more aggressive Green-building strategies may add additional upfront costs to a project. However, there are usually mid- and long-term ROIs that more than merit these additional expenses.

The THERMOMASS Building Insulation System is a cost-effective way to achieve a variety of points toward LEED certification. Please call us anytime to discuss how THERMOMASS can become a valuable tool in your Green building strategy.

Paige Green
National Sales Manager



RESIDENTIAL PROJECTS FEATURED IN NATIONAL MEDIA

THERMOMASS Residential Poured-In-Place Systems are receiving press coverage lately in several major metropolitan newspapers.

The Minneapolis Star Tribune’s website has been running a feature about a local family’s experiences building a new home. Called “From the Ground Up”, the online series is an interactive journal that reports on the progress of designer Jason Hammond and his family as they plan and build a contemporary home in the Twin Cities.

Special attention is paid to their consideration of the balance between a modern family’s needs, project costs and environmental responsibilities that go along with constructing a new home.

The July 28th issue of the paper featured some photos and an excerpt from the Hammond’s blog.

“We chose Plummer Concrete as our subcontractor because they have experience in installing this unusual concrete foundation system, which...features a layer of insulation sandwiched between two layers of concrete, forming a highly energy efficient wall that is resistant to mold, mildew and cold - problems often associated with basements.”

The online series can be found online at: www.startribune.com/blogs/newhouse

The Denver Post has also recently featured a THERMOMASS home. In its August 1st issue, The Post included an article about the Cassidy-Greene home in Larkspur, Colorado.

The house was built by retired stockbroker Jim Cassidy and his wife Lynn Chapman Greene, a consultant on utility-scale wind-energy projects. The couple wanted a home that “would swell

with friends and grandchildren, and that managed to produce more energy than it used.”

While it is still a work in progress, the Cassidy-Greene house is definitely on track to meet those goals.

We are very excited about all of the residential projects that are currently underway around the country and look forward to even more media coverage about the positive effects of building homes using the THERMOMASS Building Insulation Systems .

Robert Long
Executive Vice President



During our nearly thirty years in the insulated concrete industry, Composite Technologies Corporation has come to rely on a number of analytical methods to calculate the effectiveness of the THERMOMASS Building Insulation System for a specific project taking into account the proposed building's use and geographic location. Below are brief explanations of a few of our more commonly provided analyses.

Mass Correction Analysis

Mass Correction Analysis, simply stated, illustrates how a "high mass" wall, (i.e. THERMOMASS), behaves in a climate in comparison to a "low mass" wall, such as stick-built or insulated metal panel.

More precisely, it is an estimate of the R-value that would be needed in a lightweight (conventional wood frame) construction having no appreciable thermal mass to produce the same total heating and sensible cooling loads as a massive wall system.

The comparison is made to a wall system without mass for one reason – the design and construction industry understands the concept of R-value but not thermal performance.

It is well documented that thermal mass can greatly reduce the overall heating and cooling requirements of a facility. Therefore, equating the loads from a wall construction with relative high thermal mass to one having no appreciable mass validates the statement that insulation and mass will have an "effective R-value" of greater than "X" for each particular project location.

Isothermal Analysis

An Isothermal analysis demonstrates how penetrations through an insulation system affect the R-value, and to what degree by comparing a standard THER-

MOMASS panel against a panel that has a tie system that creates thermal bridging, such as CMU webs, solid concrete sections or metal ties to show what the actual "in use" R-value is. It gives a calculated (steady-state) R-value, and then a corrected R-value for each wall system, as well as the percentage of loss over the individual panel respectively.

In general, the THERMOMASS system retains over 99% of its thermal value with only a minute loss due to the connecting rods through the insulation. The comparison system, due to the solid concrete areas of the CMU webs, as well as the cores that are solid for reinforcement purposes, loses a great deal of its thermal integrity - most times in excess of over 50%.

Dewpoint Analysis

This analysis can answer two questions: whether or not a vapor retarder is necessary in the wall construction and/or what is the proper thickness of insulation that is necessary to eliminate a condensation problem.

By using both interior and exterior climate data and determining a thermal gradient through the construction materials, it calculates the dew-point temperature and where it will occur, as well as the possible condensate accumulation in ounces per day per square foot.

Areas that have possibility for moisture could lead

to problems such as increased maintenance, material replacement, and even unhealthy conditions such as mold.

Energy Savings Analysis

The energy consumption of two competing systems are calculated using corrected R-values from the thermal analyses. The resulting value is the expected amount of savings per year.

It should be noted that these results apply only to the wall system and do not calculate savings associated with building costs, additional savings from insurance, decreased maintenance, energy price increases, or peak usage.

**ASHRAE 90.1-2001 Compliant Building
Envelope Performance Study**

Study Provided For:
Estherville Jr. High School
Estherville, IA. - 2" Thermomass



BUILDING DESIGN PARAMETERS

A.S.H.R.A.E./I.E.S.N.A. STANDARD 90.1-1989 - SYSTEM PERFORMANCE CRITERIA: R-value Performance and the Heating and Cooling Load Adjustments for the Effects of Concrete Mass Within the Building Envelope

OPERATING TEMP: 70° F	NORTH WALL AREA: 9,504 ft ²	GLAZING AREA:
WEST WALL AREA: 9,504 ft ²	GROSS FLOOR AREA: 88,210 ft²	EAST WALL AREA: 9,504 ft ²
GLAZING AREA:	GROSS WALL AREA: 38,016 ft ²	GLAZING AREA:
	NET OPAQUE WALL AREA: 38,016 ft ²	
ROOF TYPE: n/a	SOUTH WALL AREA: 9,504 ft ²	AVG. WALL HEIGHT: 32
	GLAZING AREA:	

MASS ANALYSIS 1.1

ADDITIONAL DESIGN PARAMETERS

Position of Insulation: **2** Occupancy Classification: **9**

WALL CONFIGURATION: * - These values represent averages for all elevations

	Ext. Conc. Wythe: 3.00 in.*	Concrete Density: 150 pcf
	Insulation: 2.00 in.*	Steady-State Wall R-value: 11.57 *
	Int. Conc. Wythe: 6.00 in.*	Steady-State Wall U-value: 0.09 *

SELECTED CLIMATE INFORMATION

ACTUAL LOCATION: **Estherville, IA.** ASHRAE LOCATION: **Mason City, IA**

HDD50	HDD65	CDD50	CDD65	CDH80	VSN	VSEW	VSS	DRNG
4311	7735	2708	658	1882	400	783	1053	20.8

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A Mass Correction Analysis (like the one pictured above) can help illustrate how a "high mass" wall like THERMOMASS behaves in a climate in comparison to a "low mass" wall, such as stick-built or insulated metal panel.

PROJECT PROFILE: TURNBULL WINE CELLAR - OAKVILLE, CALIFORNIA

(continued from page 1)

of concrete is 9 inches while the exterior veneer layer is 2 inches of concrete. Unique to this project is the exterior finish applied to the fascia concrete.

When you imagine a “cave”, exposed concrete usually comes to mind. Many projects utilize a natural concrete finish both inside and out. Some choose a sand-blasted and/or colored concrete veneer. Others choose to stain or paint. The owner of Turnbull Wine Cellars chose to blend this facility in with its surroundings, electing for a sustainable redwood siding.

The planks of natural siding were fastened to furring strips which were anchored in the 2-inch concrete veneer and fastened into place once panels and fenestrations were in place.

The winery owner decided early on in the design process to feature total concrete construction to complete the “above ground cave”. To do this, in addition to the concrete sandwich wall panels, the owner chose to use a hollow-core plank roof system. Easily incorporated and detailed due to the load-bearing concrete wall panels.



These precast concrete planks were finished with a topping slab of concrete to create the slope and treated with a Hydrotech™ roof membrane.

When detailed in sync with the THERMOMASS wall panels and covered with 4 inches of Hi-Load™ 40 STYROFOAM insulation, fabric, and white stone ballast, the owner created a highly durable, cool roof, that, when combined with the concrete sandwich wall panels, is

designed to provide complete insulation coverage that lasts many years.

The combined concrete mass presented by the sandwich walls and the hollow-core roof system is so great, that once wrapped on the outside with STYROFOAM, there is a large reservoir of stored heat at the desired interior temperature.

Various studies on nearly thirty years worth of THERMOMASS structures have proven that this high interior mass not only dampens the maximum demand for heating/cooling, but it gives a time delay of about 12 hours. The cooling units are designed to run in the cool of the night allowing the building to coast through the heat of the day.

Also, because the concrete absorbs and releases moisture reflecting the relative humidity of the interior air, the interior humidity is stabilized.

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Above: Planks of natural siding were fastened to the outside of the concrete walls to give the facility a traditional feel.

Left: THERMOMASS walls and a hollow-core roof system form an “above-ground cave” to store Turnbull Winery’s fragile products.



CTC HOSTS THERMOMASS SALES WORKSHOP

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THERMOMASS in this “cave” provided a 67% reduction in mechanical tonnage and the only indefinite life solution; a long term building with the ultimate in energy efficiency, stable interior temperature, and humidity control.

Our satisfied customers will agree, and make up a “Who’s Who” list of wine makers:

Bronco Winery, Byron Winery, Clos Du Bois Winery, Columbia Crest Winery, Columbine Vineyards, Fox Creek Winery, Groth Winery, Hasselgrove Winery, Heathfield Ridge Winery, Leeuwin Estate Winery, Leonitti Winery, Mondavi Winery, New Star Winery, Novelty Hill Winery, Pepper Ridge Winery, Pietra Santa Winery, Qualis Gate Winery, Sonoma-Cutrer Winery, Sundale-New Leaf Winery, and Australia’s Scotchman’s Winery.

If you are traveling through Northern California wine country, be sure to visit the Turnbull Tasting Room and tour the facility.

The winery can be reached by phone at (800) 887-6285 or at their website, www.turnbullwines.com, to schedule a tour or to order wine.



Composite Technologies Corporation recently held its 2007 Summer Sales Workshop. Sales managers and independent sales agents from around the country gathered at CTC’s corporate headquarters in Boone, Iowa, for the two-day event.

Highlighting the meeting’s educational portion was discussion of the benefits of the C-Wall Insulation System and its numerous applications. Additionally, the group talked about the growing trend toward Green Building and how THERMOMASS can be incorporated into projects striving for LEED certification.

Because the meeting featured such a geographically diverse group of salespeople, there was an extraordinary amount of information exchanged as each of the attendees talked about how THERMOMASS is used in their part of the country.

Additionally, the group benefitted from the exchange of ideas between new salespeople and those - like Ben Bledsoe and Bob Long - whom have been talking about THERMOMASS for over twenty and thirty years, respectively.

The social portion of the event started on the first evening with a barbeque dinner. Accomplished chef Matt Walsh of Sano and Associates did a fantastic job of manning the grill and preparing some outstanding food for the get-together.

The second day featured a golf outing at Glen Oaks Country Club in West Des Moines, Iowa.

This annual event once again marked a successful learning tool for those who attended as well as a great beginning to the second half of the year for the entire THERMOMASS sales team.



Participants in Composite Technologies’ Summer Sales Workshop (from left to right): Mitch McCaulley, Dan Thomas, Pete Baker, Bud Shipman, Ken Schmidt, Ed Fuhs, Dave Gordon, Bob Long, Paige Green, Ben Bledsoe, Kevin Slattery, Bob Bertig, Dave Fincham, Cindy Matthies, Brad Nessel, Matt Walsh, Andy Turner and Mike McCain

THERMOMASS FAMILY EXPANDS

Successful companies are always looking to add members to “the family”. As such, Composite Technologies has been expanding all areas of its workforce – technical services, sales and production.

In addition, over the past several months, our “family” grew even larger than expected when four of our employees added to their own families.

This past July, Aimee Lunde - CTC’s Eastern Region Sales Coordinator - and her husband, Chris, welcomed home their second son, Connor.

Also in July, Mitch McCaulley – CTC’s Midwest Sales Manager – and his wife Amy had their second child, Riley.

In April, Mende Turner - wife of Southeast Sales Manager, Andy Turner - gave

birth to the couple’s third son, Bronson.

Craig Bjorseth and his wife Lacey had their first child, Lucas, also in April. Craig works in our Technical Services department.

We congratulate all of the parents and wish their new additions a lifetime of happiness.

THERMOMASS NAMED AN ARCHITECTURAL RECORD TOP PRODUCT

Each year, Architectural Record magazine forms a jury to select the most interesting and innovative new building products available to architects, designers, and specifiers.

Composite Technologies is proud to announce that the THERMOMASS Building Insulation System was a 2006 Top Product winner in the Concrete category which included products for cast-in-

place concrete, precast concrete and concrete forming and accessories.

According to the magazine, the selection process does possess “a few universal constants: The product



responds to a need in the marketplace; it isn’t harmful to the end user or the environment; and it displays a certain level of detailing and craftsmanship. An added bonus is when it’s produced by a reliable manufacturer interested in establishing a long-term relationship with the specifier.”

DALLY PROMOTED TO PRODUCTION MANAGER

Mike Dally has been promoted to the position of production manager for Composite Technologies Corporation.

In this new position, Mike will oversee a wide variety of responsibilities including material purchases, production scheduling and production staff management. He will report to CTC’s operations manager, Craig Van Brocklin.

Previously, Mike had been in charge of the maintenance department for Composite Technologies and had also been involved in designing and building equipment for the company’s various research and development projects.

“We are very happy with the experience and organization that Mike brings to this job,” said Van Brocklin. “We are

right in the middle of the busy summer construction season, plus we are in the process of expanding our production capabilities, and Mike has stepped right in and done a fine job.”



Mike Dally

NEXT TIME

Be sure to check out our Winter 2007 issue for more project profiles and residential and international news. If there is something specific you would like us to cover, please drop us a line and let us know!

Look for the Winter 2007 edition of *Connections* later this November



The THERMOMASS Building Insulation System is the world’s safest, most cost-effective, energy-efficient and durable concrete sandwich wall insulation system.

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